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# Atmospheric Radiation Effects

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## Atmospheric Radiation Issues

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### Errors Induced by Alpha Particles

- Package materials
- Solder and bonding materials
- High-Z interconnects and contacts

### Neutrons Produced by Cosmic Rays in Upper Atmosphere

- Produce upsets in high-density electronics in terrestrial applications
- Major concern for semiconductor manufacturers
- Close tie in with upset issues from protons in space



## Sematech Committee on Soft-Error and Alpha Upset

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Several Semiconductor Vendors Participated in Development of Test Standards

### Committee Members

- AMD
- IBM
- Intel
- Motorola
- TI
- Lucent
- Boeing
- Sandia
- JPL



## Current Status of Work

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### Test Standard Completed in 1999

- Submitted to JEDEC committee for review
- Revised standard to be prepared by September, 2000

### Additional Work Planned for Next Fiscal Year

- Evaluating new alpha particle test equipment and procedures
- Radiation tests on special advanced test structures
  - Test will verify applicability of test standards to latest technologies
  - Potentially useful to assess SEE rates in space as well



## Conference on Atmospheric Radiation Effects Planned in October, 2000

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Tentative Location: Stanford University

Several Participants

- Committee members
- Clemson and Vanderbilt Universities

Conference Proceeding also Planned